

Request for Technologies (RFT): HVLP Equipment

The purpose of this document is to request coating technologies for verification by the Environmental Technology Verification Coatings and Coating Equipment Program (ETV CCEP). This program is part of the new U.S. Environmental Protection Agency (EPA) initiative, Environmental Technology Verification (ETV). The ETV CCEP is a joint venture between the EPA and Concurrent Technologies Corporation (*CTC*) in conjunction with the National Defense Center for Environmental Excellence (NDCEE) in Johnstown, PA. The NDCEE is operated by *CTC* and the existing equipment and facilities supporting the NDCEE will be available to support ETV CCEP activities.

The purpose of the ETV CCEP is to provide unbiased, third-party verification data for coatings and coating equipment technologies that claim to produce lower volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions. Verification will be accomplished by evaluating these technologies using standardized test protocols, industry support and guidance via a stakeholders group, and broad acceptance of results. Benefits to the technology provider include:

Unbiased, third-party verification of product performance

A verification statement issued by the U.S. EPA

Marketing and promotion of technology implementation

The Technology Provider Guidance Document is attached as part of the RFT. It provides potential technology providers with a description of the verification process and the operating policies of the ETV CCEP, while the RFT addresses issues specific to verification testing in a particular focus area.

Focus Area Description - High Volume, Low Pressure (HVLP) Spray Painting Equipment

Organic coatings contribute nearly 20 percent of total stationary area source VOC emissions, as well as a significant percentage of air toxic emissions. New coating technologies are continually being developed by manufacturers in an effort to reduce any detrimental effects to the environment. At this time, the ETV CCEP will focus on verifying the performance of High Volume, Low Pressure (HVLP) paint application equipment as an alternative to conventional air spray (CAS) equipment for liquid spray painting of metal parts. HVLP equipment has the potential to replace CAS equipment based on the higher transfer efficiencies attainable by HVLP equipment. HVLP equipment operates at lower pressures that produce less overspray than CAS equipment. HVLP coating equipment is defined as liquid coating equipment which operates by

delivering a coating to a product at a pressure between 0.1 and 10.0 psig at the spray outlet.

Participation

This notice calls for the submission of HVLP spray painting equipment, as defined above. It should be understood that the product is to be supplied to CTC for verification testing, free of charge, by technology providers. Technology providers will also be asked to contribute funds for completion of the testing and verification (see section on "Cost Sharing"). Technology providers will be invited to participate in a meeting for all such candidates, to be held shortly after the closing date of this request. The meeting will give technology providers an opportunity to learn more details of the upcoming verification (including the fee required to participate) and ask questions. Technology providers will have the opportunity to review the test protocol prior to verification testing of their product.

Selection Criteria

Each product must meet the following selection criteria as a means of qualifying it for verification. The product must:

1. Satisfy the focus area described above
2. Have obvious pollution prevention qualities as a central focus
3. Have existing applications in industry
4. Be owned by the technology provider (i.e., the technology provider owns the product and its associated technologies, or controls the right to use it under a licensing or other legal agreement)
5. Be "market-ready" meaning that it is beyond the conceptual stage and is ready for introduction into use within the manufacturing engineering community

Verification Testing

Several steps are necessary in order to develop a statistically valid and fair test protocol that accomplishes the program objectives, including: determining the environmental and quality performance parameters to be verified, choosing standard test parts and coating(s), and obtaining optimum equipment settings for operation from technology providers. After the test protocol has been finalized, ETV CCEP personnel will determine the performance characteristics and verify certain performance characteristics made for

HVLP equipment submitted in response to this RFT.

Prior to verification testing, HVLP technology providers will be provided with key constants that will be used throughout the testing, including the standard paint used, and the temperature and viscosity of the paint. Each technology provider will supply the ETV CCEP with the appropriate equipment settings for their particular equipment (i.e., pressures, throughput rate, line speed, utility requirements, cure times and temperatures, etc.). Based on this input, testing will be carried out for each HVLP system to be verified using a standard equipment set-up and standard steel test parts (including test panels). Representative tests for HVLP equipment include: transfer efficiency, film thickness (and its uniformity), power requirements, pencil hardness, and gloss and color (for uniformity and quality of the applied coating film) all of which will be performed in accordance with industry accepted (ASTM) standards. Other standard paint tests, such as those for adhesion, impact, etc. may be performed. Testing is described in more detail in the test protocol. The test protocol developed by the ETV CCEP contains a high level of quality assurance and quality control checks to ensure creditable and reproducible results. After the evaluation of the product has been completed, a verification report will be written by CTC and submitted to the EPA. Upon approval of the results, the EPA will issue a verification statement for distribution.

Schedule

The estimated HVLP verification schedule includes the following:

CBD Announcement Date 07/16/97

RFT Mailing to Technology Providers 09/08/97

Responses to RFT/CBD Due 10/17/97

Meeting for Technology Providers 10/29/97

Technology Provider Commitment Due 11/28/97

Protocol Finalized Product Specific

Testing Start Date (for first product) Product Specific

Verification Statement(s) Issued Product Specific

Cost Sharing

As the ultimate goal of this program is to become self-supporting, the technology provider will be asked to contribute funds for completion of the initial testing and verifications. An estimate of the cost of a typical test will be given as a guideline. To help establish the program, a limited number of verifications will be performed where the cost is shared by the ETV CCEP and the technology provider. After a certain point (to be determined based upon responses to initial RFTs), all costs for the verification process will be paid by the technology providers.

CTC along with the EPA will determine the amount of program funds that are available to support the verification testing. *CTC* has developed an estimated cost projection for conducting the verification testing for one product. The estimate includes cost for preparations required for testing, cost for conducting the testing in accordance with the test protocol, and the cost for preparing the verification report. A minimum fee will be established based on the amount of program funds available to support testing, and the number of products submitted for testing. Priority will be given to those technology providers willing to cover a greater portion or all of the testing costs. No fee payment is required at this time. The final cost estimate for testing and the minimum required fee will be announced at, or prior to, the meeting for potential technology providers.

Technology Provider Response

In order to participate in this program, the ETV CCEP will need the following:

Loan of HVLP equipment for testing

Specification sheet(s)

Performance results

Product use(s)/application(s) (where and by whom?)

Implementation requirements (capital costs, special equipment needed, etc.)

Acceptance of verification testing agreement

Commitment to verification fee.

The technology provider meeting is scheduled for Wednesday, October 29, 1997. The meeting will include discussions of the verification process, the test protocol, and the participants' role. Tours of *CTC*'s demonstration factory, where verification testing will take place, will also be offered. If you wish to have a representative in attendance at this

meeting, please respond to Vicki Miller at 814-269-2782 by Friday, October 17, 1997.

Please address technical questions about this request for technologies to:

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